

## Decompression Sickness Case Study Two

CC: numbness and weakness of left foot X 6 hrs.

HPI: 24 y/o UPT student who was flying in T 37 to FL190 today - one sortie of 1.4 hrs with acrobatics when he found he was unable to dorsiflex his foot on attempting to leave the aircraft. Then noted numbness of left foot dorsum. No pain. Slightly dehydrated today. Reported to FS and was noted to have anesthesia of lateral calf and dorsum of foot with extensor weakness. Had struck lateral aspect L leg yesterday, but not strongly and noted nothing except slight bruise after this.

PH: non contributory

SH: Etoh – occasional; Tobacco - none

Meds - none

Allergies NKDA

FHx - NC

Exam WDW in NAD

VS - bp 142/84, p 85 reg, R 20 T 95.9

Skin - slight ecchymosis lateral L sup calf 2.5 x 2 cm

PEERLA, EOMS intact, fundi nl

HEENT - clear

Neuro- fails heel to toe, unable to stand on toes, walks with widened irregular gait

Cr nn 1-12 intact

weakness of quadriceps, knee flexion, foot dorsiflexion and extension, external rotation with dorsiflexion most weak, DTRs 2 + throughout, area of numbness (partial) and loss of sharp dull discrimination dorsal foot, lateral lower leg

IMP: neurologic DCS with weakness of biceps femoris (tibial + common peroneal nn), semimembranosis & semitendinosus (tibial n), quadriceps (femoral, obturator nn), rectus femoris (femoral n), gastrocnemius (tibial n), soleus (tibial n), tibialis anterior (deep peroneal n), peroneus longus & ext dig longus (superficial peroneal n.)

PLAN: TT6 possibly with extensions

7 Feb 01, 0005: Finished first O2 period - noted slight diminution of numbness JKW

0125 some increase in strength and sensation after 3rd O2 period JKW

0145 finished 60 fsw periods + 2 extensions with mild improvement. JKW

0515 Dive finished bp 114/80, p 77, T 96.3 R20 area of anesthesia is smaller, strength better, heel to toe better. Still deficient in foot strength, knee flexion, sensation. JKW

7 Feb 01, 1400: Finished 2nd TT6 dive w/o extensions. Still has neurologic deficit. JKW

8 Feb 01 HBO#3 still has weakness in L leg, heel to toe still deficient, dorsiflexion deficient (only 90 deg), sharp dull deficiency smaller. Wound care dive (90 min O2 @ 45 FSW) today JKW

9 Feb 01 HBO #4 area of anesthesia 2 x 1 cm now, weakness improved, but still present. JKW

10 Feb 01 HBO #5 Finished wound care dive - very slight weakness of extension of left foot noted after dive, however Sx have plateaued and functional level compatible with RTFS. Cleared to return to his home. Will see flight surgeon 12 Feb 01. If neurologic OK, his doc will call here DSN 240-3281, (210) 536-3281, and send to neurologist for RTFS clearance. JKW

## DISCUSSION

A great case involving a Tweet student doing acro with multiple ascents and descents in an unpressurized cockpit. He was transported to Brooks and even though treatment was begun within 12 hours, a single treatment with extensions failed to induce complete resolution. A second (tailing) TT-6 was begun 8 hours after completing the first with further improvement noted. The patient was then moved to daily tailing treatments at 45 FSW until the minor residual symptoms plateaued.

This patient is an active aviator and required a clearing neurological exam before RTFS. The neurologist felt the symptom complex could be explained by a simple peroneal nerve injury, and in fact did a nerve conduction study (don't know why as the student could raise himself up on the toes of his right foot – perfectly normal for RTFS) which was normal despite a small area of residual paresthesia. DCS rather than a peroneal nerve injury is the correct diagnosis for the following reasons:

- a) he had several symptoms which cannot be explained by a peroneal nerve injury - flexor and extensor weakness at the knee, inability to stand on tip toe, wide gait, unsteady gait.
- b) the injury over the peroneal nerve appeared trivial and symptoms did not appear until 24 hours later. While it is indeed possible to get a neuropraxia after a trivial injury and after a delay with normal functioning, this is indeed rare.
- c) The area over the common peroneal n. was erythematous and slightly tender, can be due to DCS
- d) the rapid improvement with hyperbaric therapy indicates DCS.



We concurred that RTFS was appropriate, and armed with our concurrence and only a small area of paresthesia on the foot detectable by the neurologist, the local flight surgeon sent a package requesting waiver from AETC/SGPA and received authorization to return the pilot to the cockpit (waiver required for mild residual Sx not affecting function).

